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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,083	03/30/2004	Grant M. Kloster	42P16006D	7267

7590 11/29/2005

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EXAMINER

BREWSTER, WILLIAM M

ART UNIT PAPER NUMBER

2823

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/814,083	KLOSTER ET AL.	
	Examiner	Art Unit	
	William M. Brewster	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction requirement sent 14 November 2005 has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20, 22, 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Otsuki et al., US Patent No. 5,846,853.

Otsuki anticipates limitations from claim 18, a stacked microelectronic device, comprising: in fig. 1(A), a first substrate 1 of silicon (see below), said substrate having a top surface,
a plurality of interconnect structures 2 formed on at least a portion of the substrate;
a layer of compliant material 7 formed on at least a portion of the top surface of the substrate of silicon,
in fig. 1(e), a second substrate 4 of silicon with a plurality of interconnect structures 5 formed thereon, said first and second substrate interconnect structures configured such that at least a portion of the interconnect structures of said first and second substrate respectively are in physical contact, col. 3, line 21 - col. 4, line 58;

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limitations from claim 19, the apparatus of claim 18, wherein the apparatus comprises a stacked chipset, wherein the structure may be referred to as a chipset;

limitations from claim 20, the apparatus of claim 18, wherein the first and second substrates comprise integrated circuits, LCD and IC, col. 3, line 21 - col. 57;

limitations from claim 22, the apparatus of claim 18, in fig. 1(e) wherein the compliant material substantially comprises a soft polymer 6, col. 4, line 59 - col. 5, line 4;

limitations from claim 24, the apparatus of claim 18, wherein the compliant material comprises photodefinable 7, col. 3, lines 49-57, and in fig. 7(f) non-photodefinable materials 6, col. 8, lines 18-22.

Otsuki does not specify the LCD is a silicon substrate. However the LCD contains silicon. Proffered as evidence is Yoshida et al., US Publication No. 2003/0098700 A1, p. 2, ¶ 15 stating such a relation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki as applied to claims 18-20, 22, 24 above, and further in view of Takenaka et al., US Publication No. 2003/0138553 A1.

Otsuki teaches, limitations from claim 21, the apparatus of claim 18, wherein at least a portion of the interconnect structures comprise vias, the conductive particles 3 set in the surrounding compliant material 7, col. 3, lines 49-57.

Otsuki does not specify the vias are made of copper, but Takenaka does. Takenaka teaches in figs. 1B - 1F, filling the via holes 3 with copper conductive particles, p. 3, ¶ 46. Takenaka gives motivation in p. 2, ¶ 28. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Takenaka's process with Otsuki's invention would have been beneficial because it helps reduce costs of manufacturing.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki as applied to claims 18-20, 22, 24 above, and further in view of Asai et al., US Publication No. 2004/0212030 A1.


Otsuki does not specify certain compliant materials, but Asai does. Asai teaches limitations from claim 23. the apparatus of claim 18, wherein the compliant material substantially comprises one of: polyimide, polybenzoxazole, photodefinable siloxane, novolak, or a polynorborene buffer: polyimide resin, p. 10, ¶ 262. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Asai's process with Otsuki's invention would have been beneficial because its readily available and can be easily blended with other compounds.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



25 November 2005

WB